

(12) UK Patent Application (19) GB (11) 2 132 884 A

(21) Application No 8334632

(22) Date of filing 30 Dec 1983

(30) Priority data

(31) 8300099

(32) 5 Jan 1983

(33) United Kingdom (GB)

(43) Application published
18 Jul 1984

(51) INT CL³

A46B 13/06 11/06

(52) Domestic classification

A4K 151 153 161 BA BC

U1S 1245 1820 A4K

(56) Documents cited

GB A 2105579

GB 1273127

GB 0810343

(58) Field of search

A4K

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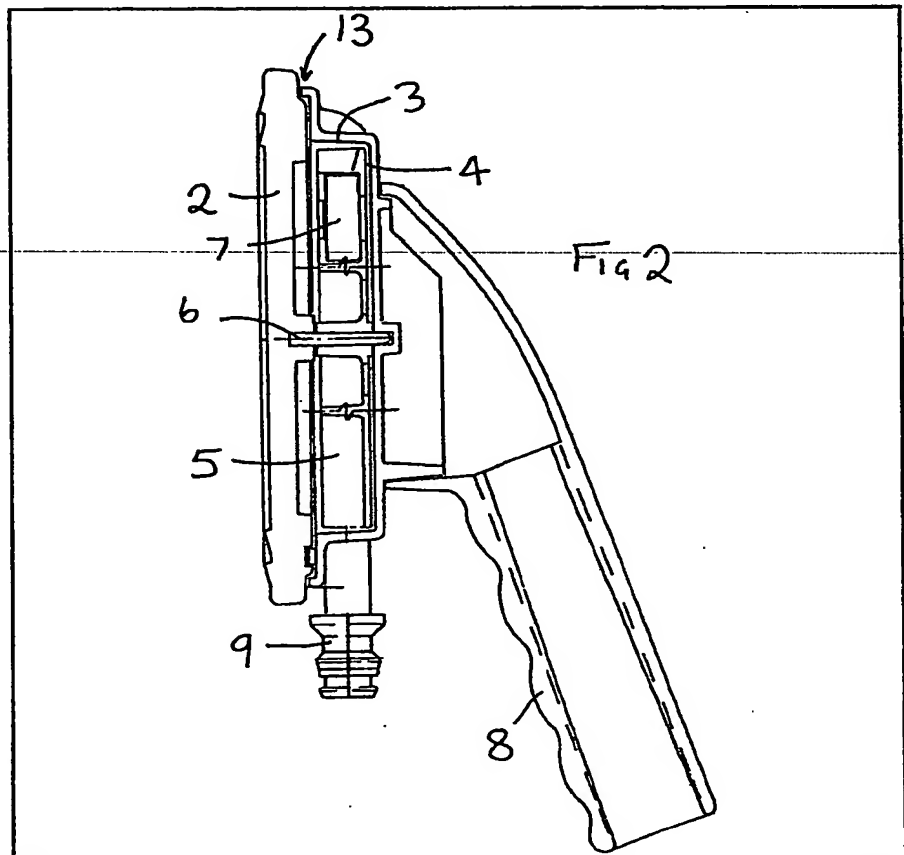
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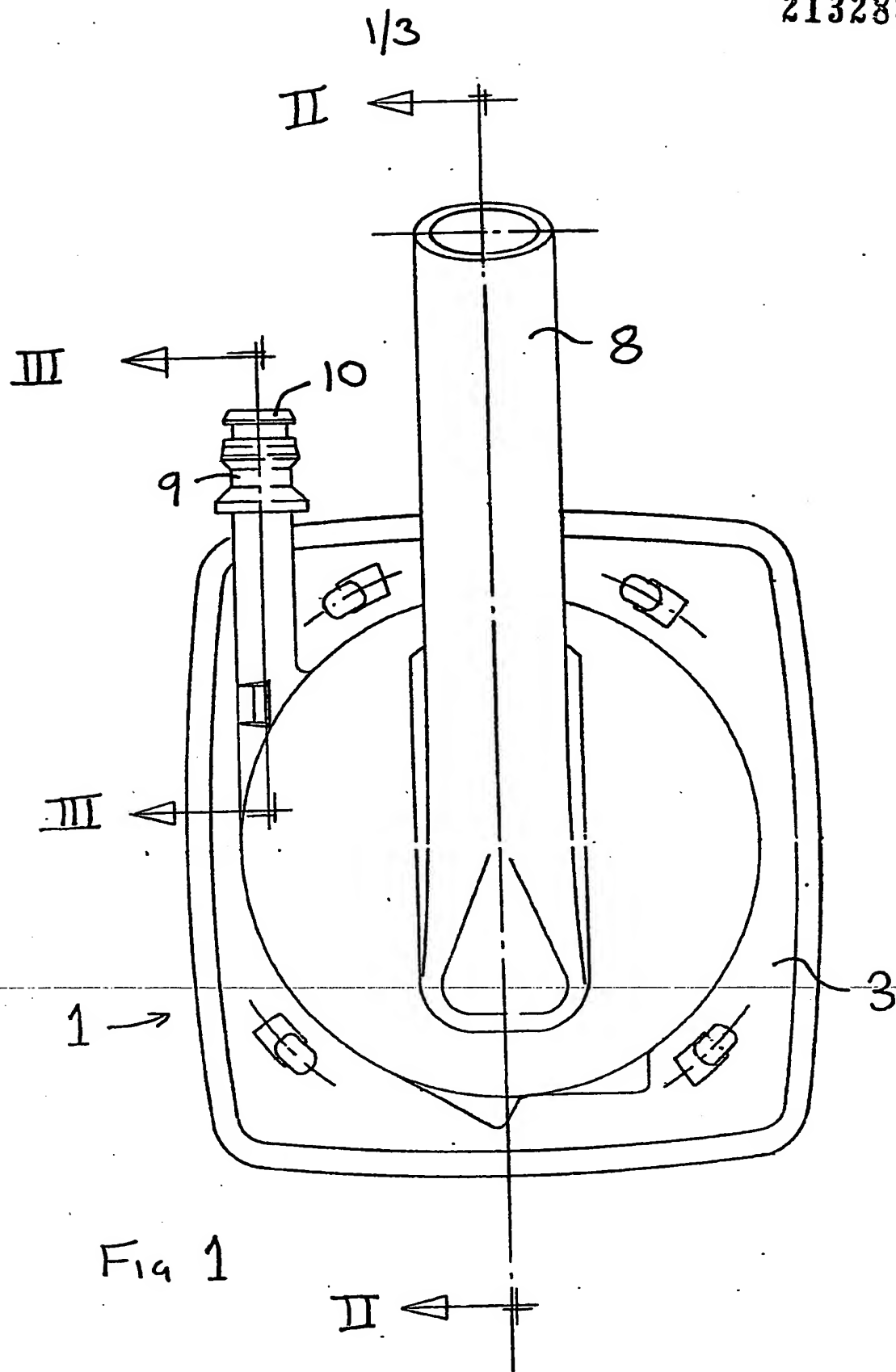
(54) Cleaning brush

(57) A cleaning brush (1) comprises a base (2) from which bristles extend, a casing (3) secured to the base (2) to define a chamber (4), and a vibration generator located within the chamber to impart vibrations to the brush. The vibration generator preferably comprises a turbine (4) which carries an offset weight (7) and which is rotated by water supplied to the brush under pressure.



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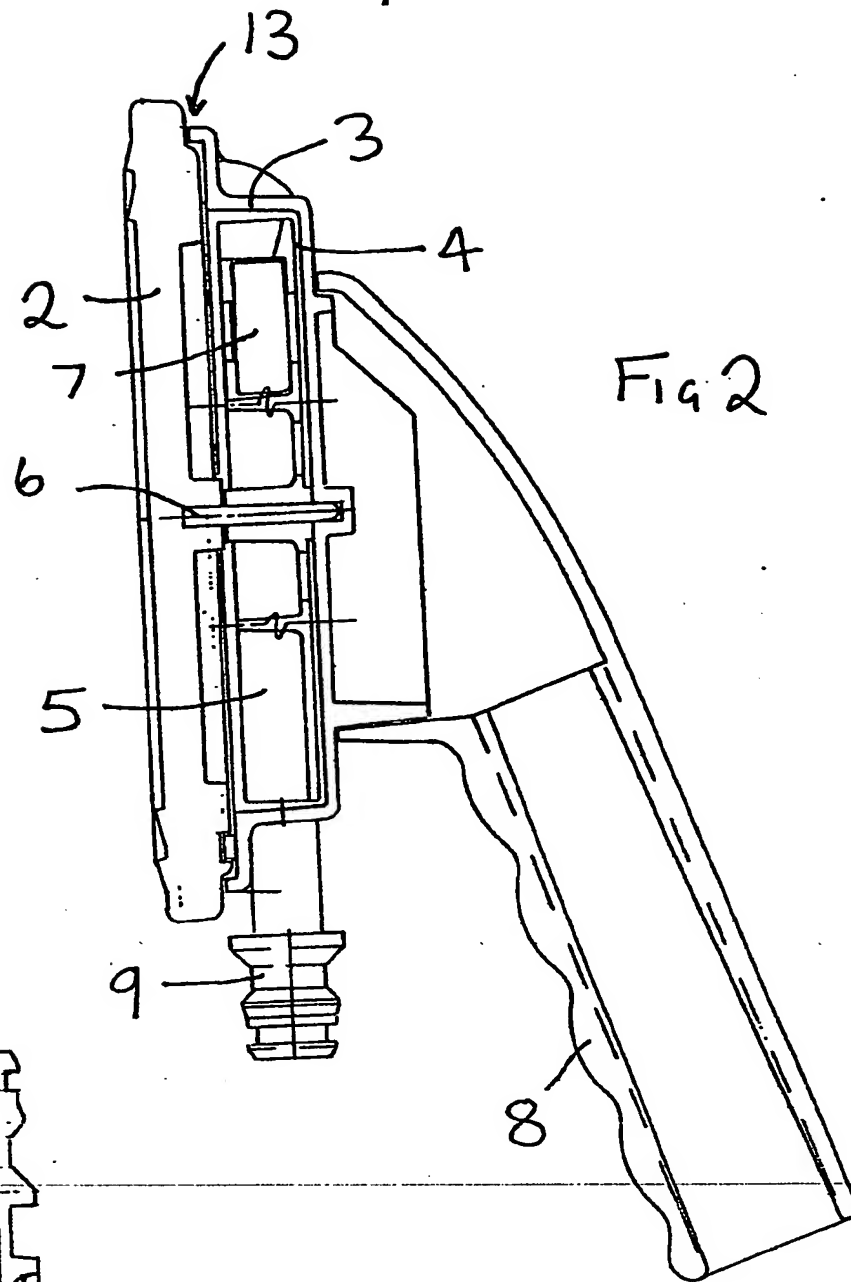


Fig 2

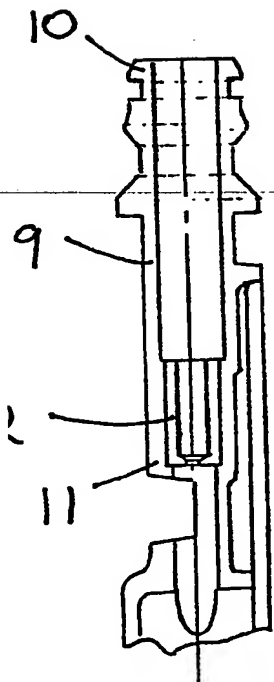


Fig 3

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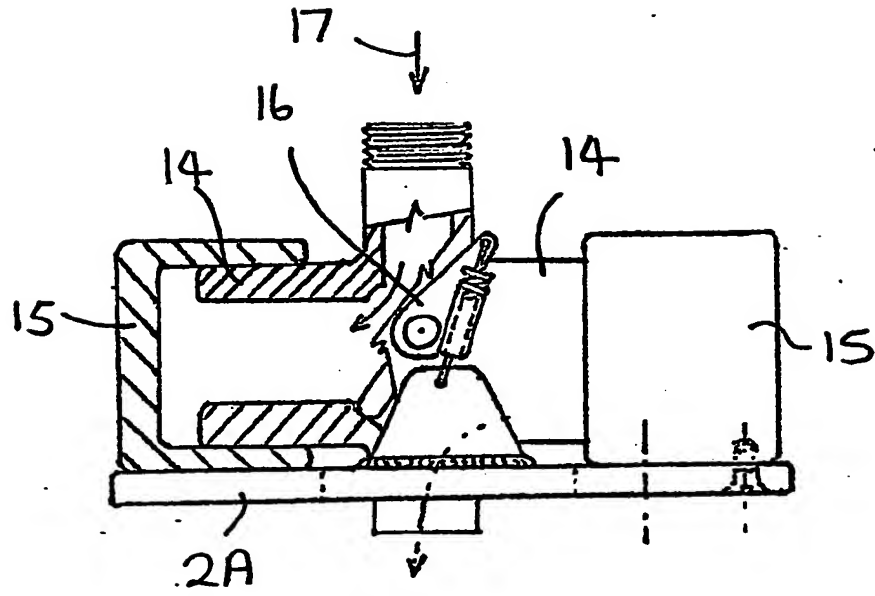


Fig 4

SPECIFICATION

Cleaning Brush

5 This invention relates to a cleaning brush and in a preferred embodiment provides a cleaning brush particularly suitable for cleaning motor vehicles.

According to the present invention there is provided a cleaning brush comprising: a base having
10 bristles or bristle like projections secured thereto; and a vibration generator coupled on the base to vibrate the base, the vibration generator being powered by liquid supplied under pressure to the brush.

15 In an embodiment of the invention suitable for general domestic or commercial washing of the motor vehicles the operating liquid will be mains water supplied via a flexible hose pipe. However, if mains water pressure is insufficient to provide the
20 intensity of vibration required for some particular task suitable means may be provided for boosting the pressure of the liquid supplied. The operating liquid may advantageously include detergent or a similar aid to cleaning.

25 The invention will be better understood from the following description of a preferred embodiment thereof wherein:

Figure 1 is a plan view of a preferred embodiment of the invention;

30 *Figure 2* is a cross-sectional view on the line II-II of *Figure 1*;

Figure 3 is a cross-sectional view on the line III-III of *Figure 1*; and

35 *Figure 4* is a partial view of an alternative embodiment of the invention.

Referring to the drawings, there is illustrated a cleaning brush 1 suitable for domestic or light commercial cleaning of, for example, motor vehicles. The brush 1 comprises a base 2 from which
40 extends a plurality of bristles or bristle like projections (which have been omitted from the drawings in the interests of clarity). The base 2 is secured to a casing 3 to define therewith a chamber 4 in which is mounted a turbine 5. The turbine 5 is mounted on a
45 central shaft 6 which is mounted at respective ends thereof in the base 2 and casing 3. The shaft 6 is at the geometric centre of the turbine, but the turbine is provided with a weight 7 offset from the centre thereof so that the centre of gravity of the turbine is
50 located between the shaft 6 and the weight 7. Thus, as the turbine 5 is rotated in use vibrations are imparted to the base 2 and casing 3.

A handle 8 is secured to the casing 3 to enable the brush to be grasped at a point remote from vibration
55 generation.

In use the turbine 5 is rotated by water supplied to the casing 3 via a nozzle 9 which is provided at the free end 10 thereof with means to receive a domestic hose pipe. At the inner end 11 of the nozzle a plastic
60 nipple 12 is provided to form a high speed jet of water which impinges tangentially on the turbine 5. Water exit from the chamber 4 by way of a peripheral space 13 provided between the casing 2 and base 3 and, optionally, by way of through
65 passages (not shown) provided in the base 2 where-

by the surface to be cleaned is wetted by water exiting from the turbine.

Whilst the main use for the cleaning brush described above will be in washing motor cars and
70 light commercial vehicles, other embodiments of the brush may be used for other cleaning purposes, for example washing of the body, washing of animals (e.g. of cows prior to milking), or washing of larger commercial vehicles. As indicated above, if domestic
75 water pressure is insufficient for the particular embodiment of brush for a particular function, pressure may suitably be boosted by an electric or internal combustion engine driven pump. The vibrations imparted to the bristles by the vibration
80 generator constituted by the turbine 5 assist in removing dirt from the surface to be cleaned, and the action of the bristles assisted by water exiting from the turbine provides an efficient cleaning action in a single pass.

85 Referring now to *Figure 4* an alternative embodiment of the invention is shown in which a base 2A is provided with a vibration generator comprising two horizontally opposed pistons 14 coupled together and working in respective cylinders 15. A valve 16
90 directs incoming water 17 to one of the piston/cylinder combinations, thereby driving the piston out of the cylinder and expelling water from the other piston/cylinder combination. The valve 16 is operable as the pistons approach the limit of their
95 stroke to direct the incoming water to the piston/cylinder formerly vented, and to vent the piston/cylinder formerly connected to the incoming water supply. Thus, the pistons oscillate automatically under the influence of incoming water pressure to
100 impart vibrations to the base 2A.

Modifications of this arrangement are possible. For example, the pistons could be replaced by diaphragms or the two pistons described and illustrated could be replaced by one central piston or
105 diaphragm connected to the base by a sealed connecting link. The two operating chambers would then be on either side of a central piston.

CLAIMS

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1. A cleaning brush comprising: a base having bristles or bristle like projections secured thereto; and a vibration generator coupled to the base to vibrate the base, the vibration generator being
115 powered by liquid supplied under pressure to the brush.

2. A cleaning brush according to claim 1 wherein the vibration generator comprises a turbine having a shaft offset from the centre of gravity of the turbine to produce vibrations as the turbine is rotated by the liquid supplied to the brush.

3. A cleaning brush according to claim 2 wherein the base is rigidly secured to a casing to define therewith a chamber which houses the vibration
125 generator.

4. A cleaning brush according to claim 3 wherein the turbine shaft is mounted at respective ends thereof on the casing and on the base to impart vibrations to both the casing and the base.

130 5. A cleaning brush according to claim 4 wherein

the brush includes an elongate handle extending from the casing to enable the brush to be grasped at a point remote from vibration generation.

6. A cleaning brush according to any of claims 2 to 5 wherein the shaft is at the geometric centre of the turbine and the turbine includes a weight offset from the centre of the turbine to locate the centre of gravity of the turbine offset from the shaft.

7. A cleaning brush according to any preceding claim wherein liquid exiting from the turbine is directed towards the surface to be cleaned by the brush.

8. A cleaning brush according to any of claims 3 to 7 wherein a space is provided between the casing and the base to permit fluid to exit from the vibration generator.

9. A cleaning brush according to any of claims 3 to 7 wherein a nozzle is provided on the casing, the nozzle being adapted at one end thereof to be secured to a hose pipe and being provided at the other end thereof with means for forming a high speed jet of liquid, and directing said jet at the turbine.

10. A cleaning brush according to claim 9 wherein the nozzle has a plastic body and said jet forming means comprises a plastic nipple secured within the plastics body of the nozzle.

11. A cleaning brush according to claim 1 wherein the vibration generator comprises at least one piston which is reciprocated by the liquid supplied to the brush to generate vibrations.

12. A cleaning brush substantially as hereinbefore described with reference to the accompanying drawings.